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## (54) SELF-SUPPORTING LIFT CAR

- (71) We, JUAN JOSE AZURMENDI INCHAUSTI of Juan de Garay 4, (bis)-San Sebastian (Spain), of Spanish nationality and HANS BUCHER LUSSY of Menendez Pelayo 49-Madrid (Spain) of Swiss nationality, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- The present invention relates to a lift car wherein two rigid platforms constituting the base platform and roof, respectively, are joined by means of vertical panels which support the weight of the load as well as of the base platform and also provide insulating and decorative functions. The car is supported by a header, by means of spaced insulating blocks made of flexible material, fixedly connected to the roof of the car at the mid-point thereof, which act as damping elements between the car and the header.
- The lift cars which are known and which have been used heretofore comprise a car mounted on a frame. The car has a ceiling which should be capable of supporting, sporadically, the weight of two persons who are in charge of the installation and maintenance of the lift. The side walls have a purely decorative function together, naturally, with that of isolating the users from the lift shaft. The platform, formed by a rigid assembly, should resist the stresses produced by the weight of the car and of the load, but the ceiling and the walls are, in no way, transmitting elements of the load of the lift nor do they resist any stress produced thereby.
- This entire assembly, as well as the load, are supported by a frame which constitutes a rigid assembly, like a steel profiled frame, which is formed by two bridges, an upper and a lower bridge respectively, and two side uprights.

The upper bridge should support the weight of the frame, the car and the load. At the centre of the upper bridge the suspension, which connects the car to steel suspension wires, is fixed.

The lower bridge, constitutes the support for the car and, therefore, should support the weight thereof as well as the weight of the load.

This construction of the lift car known heretofore, presents a series of problems, both technical and economical, which are completely overcome by the present invention.

Following a chronological order, we could start with its transportation, up to the point of installation. Due to its enormous size, since it constitutes a rigid, hollow cage, the cost of transporting the heretofore known car transporting is considerable in comparison with the car of the present invention which, since it can be dismantled completely, permits the loading space of the transporting vehicle to be utilised to the maximum.

The installation of the heretofore known car is very complicated, since handling of a structure which normally, in small lifts, exceeds 300 kg. in a closed area wherein it is always impossible to use cranes, causes considerable difficulty.

On the other hand, on many occasions, the installation has to be carried out in a completely finished building and even a building which is in use, thus requiring suitably sized holes to be made in partitions and walls, so that the car can be driven to its lift shaft.

This problem is also overcome by the present invention since its assembly is carried out in the lift shaft itself, whereby access thereto is highly convenient, both with regards to handling as well as to the necessity of space for the access.

On the other hand, in conventional cars,

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since the suspension header is directly joined to the support of the car, the possible vibrations of the motor are transmitted to the car through a continuous metallic path, while in the car according to the present invention, its suspension by means of flexible blocks, insulates the car from such vibrations, whether accoustic or mechanical.

In the accompanying drawings

Figure 1 is a perspective view of a conventional lift car which illustrates the structural differences with respect to the lift car of the present invention,

Figure 2 is a perspective view, similar to Figure 1, of a self-supporting lift car, of the present invention, and

Figure 3, is a partially sectioned view of a supporting panel, forming the side walls of the lift car shown in Fig 2 showing its inner structure.

It can be seen from Fig 2 that the lift car 1 is suspended from steel wires 2 by means of a header 3 which is used in place of a frame 9 of the conventional lift car shown in Fig. 1. The header 3 comprises two steel-strip U-section profiles 4 whose concavities face each other to provide a prismatic structure, arranged transversally with respect to the ceiling of the car and whose end surfaces are closed by welded steel sheets 11 which support a wedge box 5 and a guide shoe 6 forming part of the operating means.

The lift car 1 is suspended from the header 3 by means of two steel bolts 10 welded to the ceiling of the car, at points arranged adjacent the ends of a transversal mid-axis and which extend upwardly through the base of the header 3, to be coupled thereto by means of rubber blocks 7 on which washers 8, fixed to the upper end of the bolts, rest.

The ceiling of the car constitutes the sole support thereof and is composed of two lateral profiles, 12 made from steel sheets interconnected by a steel sheet 13, which profiles are closed at the rear end by means of a welded steel sheet, while the inner ceiling is made of a reinforced steel sheet.

The lower platform is, in turn, constituted by a steel sheet 14 reinforced at its lower surface by means of three uprights of omega-shaped cross-section, which is closed at its side and rear edges by a steel sheet 15.

Interconnection of the ceiling and the platform is effected by self-supporting panels 17 constituted by a triple wall, the outer wall 18 being formed preferably of steel coated with zinc, the inner wall 19 being formed preferably of plasticized steel, and the intermediate wall 20 consisting of a

filling comprising cellular cardboard or a non-combustible material which has the purpose of insulating and sound-proofing the walls of the lift car.

These panels 17 are fixed to the ceiling and to the platform by means of screws from the interior of the car, and comprise the only joining element between both, which therefore transmit the load from the platform to the ceiling.

This construction, besides the advantages previously mentioned, offers a slight reduction in weight with respect to the conventional constructions having the same capacity, which not only reduces the cost of the material of the structure itself, but also the power required for operation.

On the other hand, the present construction of the panels constituting the car gives the user the impression that the car has a greater rigidity than conventional ones, wherein the panels are purely decorative and completely lack rigidity, since this is concentrated in the cage.

#### WHAT WE CLAIM IS:—

1. A self-supporting lift car comprising two rigid platforms constituting the roof or ceiling and base thereof, which platforms are joined to each other solely by means of supporting panels, and spaced insulating blocks made of flexible material fixedly connected to the roof on its transversal mid-axis by means of which the car is flexibly suspended from a header which connects it to suspension means.

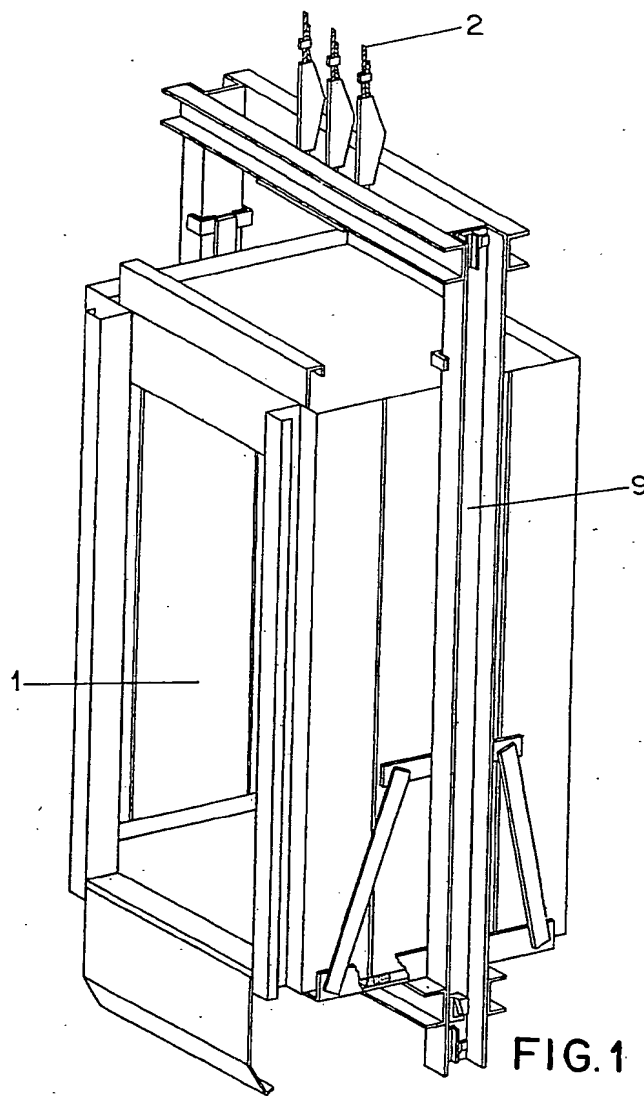
2. A self-supporting lift car according to claim 1, wherein the suspension header of the car is constituted by two profiles of 'U'-shaped cross-section whose concavities face each other and are closed at their ends by means of welded steel sheets, which header is connected to the roof of the car by means of two bolts welded thereto which are fixed to the header by means of insulating blocks housed in the interior thereof.

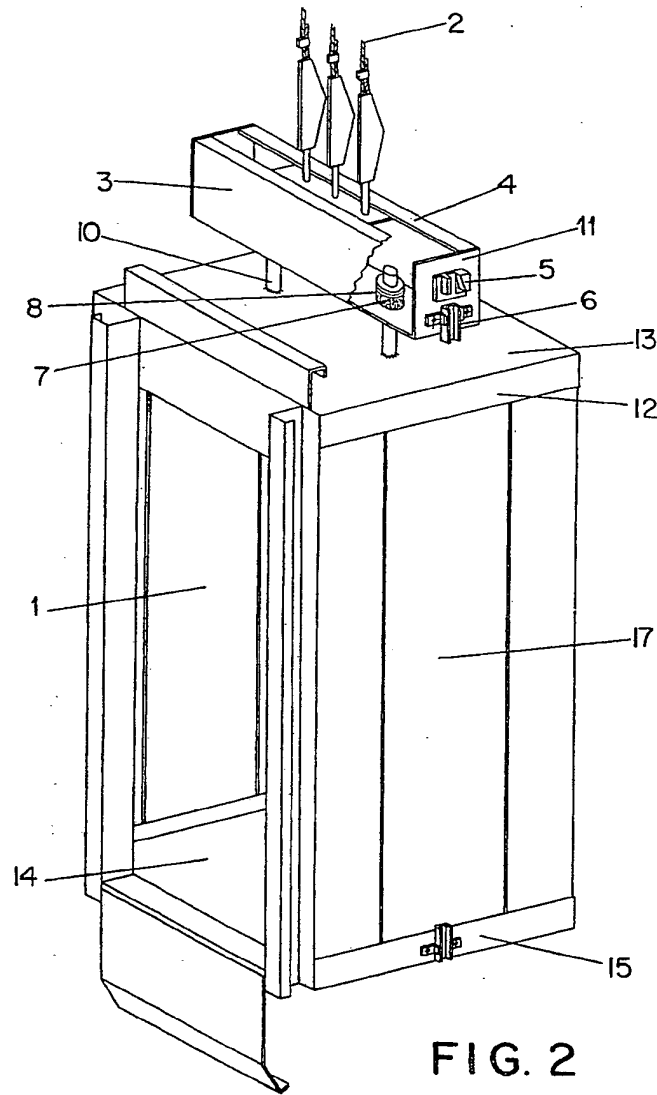
3. A self-supporting lift car according to claim 1 or 2, wherein the panels constituting the sides of the car have spaced walls in the interior of which an element made of insulating material is housed, and which are joined together in such a way that besides being supporting, they are protecting and decorative.

4. A self-supporting lift car, substantially as described with reference to Figs. 2 and 3 of the accompanying drawings.

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COMPLETE SPECIFICATION

3 SHEETS

*This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 3*

